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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ANDREAS EIPPER, BERND BRUCHMANN,
DIETRICH SCHERZER, JEAN-FRANCOIS STUMBE,
CARSTEN WEISS, and FREDDY GRUBER

Appeal 2012-000150
Application 10/587,997
Technology Center 1700

Before: CATHERINE Q. TIMM, BEVERLY A. FRANKLIN, and
RAE LYNN P. GUEST, *Administrative Patent Judges*.

GUEST, *Administrative Patent Judge*.

DECISION ON APPEAL

I. STATEMENT OF CASE

Appellants appeal under 35 U.S.C. § 134 from the Examiner's decision to reject claims 1-14 under 35 U.S.C. § 103(a) as unpatentable over Gareiss (US 6,084,012, issued July 4, 2000) in view of Davis (GB 2 324

797, published November 4, 1998).¹ We have jurisdiction under 35 U.S.C. § 6(b). An oral hearing was held on March 8, 2012.²

We AFFIRM.

Appellants' invention relates to a molding composition comprising a thermoplastic polyester, a highly branched or hyperbranched polycarbonate, and other additives (Spec. 1:5-16). The molding composition has good flowability characteristics and mechanical properties (Spec. 3:17-26).

Claims 1 and 5 are illustrative:

1. A thermoplastic molding composition comprising:

A) from 10 to 99.99% by weight of at least one thermoplastic polyester;

B) from 0.01 to 50% by weight of a highly branched or hyperbranched polycarbonate having an OH number of from 1 to 600 mg KOH/g of polycarbonate (to DIN 53240, Part 2), a degree of branching from 10 to 99.9%, and both structural and molecular non-uniformity;

C) from 0 to 60% by weight of other additives;

¹ The Examiner also rejects claims 1-14 under the judicially-created doctrine of obviousness-type double patenting over claims 1-20 of co-pending U.S. applications 11/996,489 and 11/815,238. Appellants do not traverse the merits of the double patenting rejections (*see generally* App. Br.). Appellants initially request that these rejections be withdrawn and added to the later filed applications (App. Br. 9). When the Examiner correctly indicates that withdrawal on such a basis is not appropriate (Ans. 13), Appellants request withdrawal on the basis that terminal disclaimers were filed in the co-pending applications (Reply Br. 3). However, as no terminal disclaimers have yet been filed in the record of the present application, we summarily affirm the double patenting rejections as Appellants have waived any appeal of the rejections.

² We refer to the transcript of the oral hearing herein as "Tr."

wherein the total of the percentages by weight of components A) to C) is 100%.

5. The thermoplastic molding composition according to claim 1, wherein component B) is obtainable via a process comprising:

reacting at least one organic carbonate (A) of the general formula $\text{RO}[(\text{CO})]_n\text{OR}$ with at least one aliphatic, aliphatic/aromatic or aromatic alcohol (B) which has at least 3 OH groups, with elimination of alcohols ROH to give one or more condensates (K), where each R, independently of the others, is a straight-chain or branched aliphatic, aromatic/aliphatic or aromatic hydrocarbon radical having from 1 to 20 carbon atoms, and where the radicals R may also be connected to one another to form a ring, and n is an integer between 1 and 5, or

ab) reacting phosgene, diphosgene or triphosgene with abovementioned alcohol (B), with elimination of hydrogen chloride, and

intermolecular reaction of the condensates (K) to give a highly functional, highly branched, or highly functional, hyperbranched polycarbonate,

where the quantitative proportion of the OH groups to the carbonates in the reaction mixture is selected in such a way that the condensates (K) have an average of either one carbonate group and more than one OH group or one OH group and more than one carbonate group.

Appellants' arguments are principally directed to independent claim 1 (App. Br. 6-7). Appellants separately address claim 5 (*id.*, 8). Any claim not separately argued will stand or fall with independent claim 1. *See* 37 C.F.R. § 41.37(c)(1)(vii).

II. DISCUSSION

We adopt the Examiner's findings in the Answer as our own and add any additional findings of fact appearing below for emphasis.

A. CLAIM 1

1. ISSUE ON APPEAL

A first issue on appeal arising from the contentions of Appellants and the Examiner is: does the evidence support the Appellants' view that (a) the Examiner unreasonably concluded that one of ordinary skill in the art would have added the polycarbonate disclosed by Davis as a plasticizer in the thermoplastic polyester composition taught by Gareiss and (b) a prima facie case of obviousness, if established, is sufficiently rebutted by Appellants' evidence of an unexpected and superior increase in flowability? We answer this question in the negative.

2. ANALYSIS

The Examiner finds that Gareiss teaches a thermoplastic polyester molding composition that includes components A) and C) of claim 1, but does not disclose including a highly branched or hyperbranched polycarbonate component B) as recited in claim 1 (Ans. 5). The Examiner finds that Davis teaches hyperbranched polymers, one of which is a hyperbranched polycarbonate having the features recited in claim 1 (*id.*). The Examiner finds that Davis teaches that "[m]any of the hyperbranched polymers of the invention have reactive functional groups at the surface . . . [and] can also be used as reactive plasticizers in thermoplastic composition" (*id.*; see Davis, p. 16, ll. 26-32). The Examiner thus concludes that it would have been obvious to one of ordinary skill in the art at the time of the invention to add the hyperbranched polycarbonates of Davis to the thermoplastic polyester composition of Gareiss to receive the expected

benefits of the polycarbonate behaving like a plasticizer (Ans. 5).

Appellants contend that the teaching in Davis is not specific enough to have suggested to one of ordinary skill in the art to specifically add the hyperbranched polycarbonates, among all of the hyperbranched polymers disclosed in Davis, to a polyester composition, specifically, among all types of possible thermoplastic compositions (App. Br. 7; Reply Br. 3; Tr. 3:16-25 and 7:5-23). We do not find Appellants' arguments to be convincing.

Davis teaches that types of hyperbranched polymers suitable for use as a plasticizer are those with reactive functional groups at the surface (Davis, p. 16, ll. 26-32). Appellants have provided no convincing evidence that the hyperbranched polycarbonates taught by Davis do not have reactive functional groups at the surface of the compound structure, and thus would not be expected to function as a plasticizer in the manner suggested by Davis.

Appellants present no convincing evidence that plasticizers are only common additives in PVC or cellulosic materials and are not generally known in the art as additives for thermoplastic polyesters (App. Br. 7). Appellants cite to pages 203-205 and 209-211 of Additives for Plastic Handbook, Elsevier, 1996, as evidence of the use of plasticizers in thermoplastic compositions, but do not provide a copy of the evidence in the record. Accordingly, we accord this evidence little weight. Moreover, we find Appellants' arguments to be contrary to the evidence of record. For example, Gareiss teaches that the thermoplastic polyester molding composition may also include plasticizers (Gareiss, col. 11, l. 66 to col. 12, l. 2). Appellants have not provided any convincing evidence that distinguishes between the "reactive plasticizer" taught by Davis and the plasticizer taught by Gareiss as being a suitable additive (*see* Tr. 7:20-23). Appellants also

have not provided any convincing evidence that the “gum” disclosed in Example 5 of Davis has unsuitable physical properties to be considered a plasticizer for the thermoplastic polyester of Gareiss (*see* App. Br. 9; Tr. 3:25-4:5). Appellants’ attorney arguments do not take the place of evidence in the record. *In re Pearson*, 494 F.2d 1399, 1405 (CCPA 1974).

Appellants further contend that the Examiner’s conclusion of obviousness is rebutted by evidence of “the dramatic improvement of flowability [measured as an MVR value] even by adding small amounts of highly branched or hyperbranched polycarbonate” (App. Br. 6; *see also* Tr. 4:6-11).³

The Examiner contends that the data presented by Appellants is not commensurate with the scope of the claimed invention (Ans. 11). In particular, the range of component A) recited in the claims is from 10 - 99.9% by weight, but Appellants’ data does not provide a comparable MVR value for any concentrations of A) less than 67% (*id.*; *see* Spec. 31:18-33:35, Tables 1-5).

We agree with the Examiner that the data does not evince that the improvements exist for the entire scope of the claimed invention, particularly a composition having smaller concentrations of component A), e.g., less than 50% by weight. Most of Appellants’ examples that have a very high MVR value (of greater than 250) do not include any additive component C) and, thus, are MVR values for compositions having only a

³ We do not consider Appellants’ additional data presented for the first time in the Reply Brief (Reply Br. 2). Such evidence is not timely presented, and the Examiner had no practical opportunity to address Appellants’ belatedly presented evidence. 37 C.F.R. §41.41 (a)(2) (“A reply brief shall not include any new or non-admitted amendment, or any new or non-admitted affidavit or other evidence.”).

very high concentration (95-100%) of component A). Appellants' data contains no examples in which the concentration of component A) is less than 67%. We note that MVR values drop significantly upon a reduction of component A) even when the same amount of component B) is added. For example, compare Examples 1 and 6 from Table 1, wherein the MVR value drops from greater than 250 to 34.4 as the concentration of component A) drops from 97% to 67%) with the same amount of component B) (Spec. 31). Thus, Appellants have provided no convincing evidence that an unexpected "dramatic improvement" in flowability fairly translates across the entire claimed range of 10-99.9% component A), particularly at concentrations less than 50%. *In re Harris*, 409 F.3d 1339, 1344 (Fed. Cir. 2005) ("Even assuming that the results were unexpected, Harris needed to show results covering the scope of the claimed range. Alternatively Harris needed to narrow the claims."); *In re Greenfield*, 571 F.2d 1185, 1189 (CCPA 1978) ("Establishing that one (or a small number of) species gives unexpected results is inadequate proof, for 'it is the view of this court that objective evidence of non-obviousness must be commensurate in scope with the claims which the evidence is offered to support.'").

Accordingly, the weight of the evidence taken as a whole supports the Examiner's conclusion of obviousness under the law.

B. CLAIM 5

1. ISSUE ON APPEAL

A second issue on appeal arising from the contentions of Appellants and the Examiner is: does the evidence support the Appellants' view that the Examiner erred in finding that Davis teaches the hyperbranched polycarbonate particularly recited in claim 5? We answer this question in the negative.

2. ANALYSIS

Claim 5 is a product-by-process claim. We agree with the Examiner that it is the patentability of the product defined by the claim, rather than the process for making it that we must gauge in light of the prior art. *In re Wertheim*, 541 F.2d 257, 271 (CCPA 1976); *In re Brown*, 459 F.2d 531, 535 (CCPA 1972). As such, the Examiner finds that Davis describes an identical hyperbranched polycarbonate compound, even though it is made by a different process (Ans. 6).

Appellants contend that the claimed hyperbranched polycarbonates are structurally distinct from Davis' polycarbonates because the claimed polycarbonates do not contain imidazolid end groups, as taught by Davis, which are unstable, easily hydrolyze, and the resulting imidazole has to be removed from the reaction mixture (App. Br. 8).

Appellants' arguments fail to convince us of a structural distinction between Davis' hyperbranched polycarbonates and the hyperbranched polycarbonates made by the process recited in claim 5. For example, Davis teaches polymerizing a compound having a single hydroxyl group (A) and two or more imidazolid groups (B) to form a hyperbranched polymer having terminal imidazolid groups (Davis, p. 9, ll. 9-21). Davis further teaches that, in just such an AB₂ structure, the terminal imidazolid groups can be reacted in a further step to convert them to different groups if desired (Davis, p. 6, ll. 4-11; *see also* Ans. 13). For example, Davis further teaches that the imidazolid of a diol can be reacted with a triol or the imidazolid of a triol can be reacted with a diol to produce a hyperbranched polycarbonate (Davis, p. 16, ll. 1-3 and 18-21). Thus, the mere presence of imidazolid groups upon polymerization does not, without more, distinguish the

hyperbranched polycarbonates that are formed once the imidazolidine groups have been further reacted.

Appellants also contend that, unlike the hyperbranched polycarbonates of the claimed invention, Davis' hyperbranched polycarbonates have poor processability, cause massive fogging, and are prone to forming mold deposits (Ans. 9).

Appellants direct us to no convincing evidence of a difference in properties between the hyperbranched polycarbonate structure prepared as taught by Davis and as recited in claim 5. As mentioned above, Appellants' attorney arguments do not take the place of evidence in the record. *In re Pearson*, 494 F.2d 1399, 1405 (CCPA 1974).

When asked during oral arguments, Appellants' attorney did not know how the structure and properties of the hyperbranched polycarbonates would be distinguished, when the imidazolidine groups were further reacted to form hyperbranched polycarbonates, as taught by Davis (Tr. 8:9-18).

The weight of the evidence taken as a whole supports the Examiner's conclusion of obviousness under the law.

III. CONCLUSION

On the record before us and for the reasons discussed above, we sustain the rejection maintained by the Examiner.

IV. DECISION

We affirm the Examiner's decision.

V. TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

Appeal 2012-000150
Application 10/587,997

AFFIRMED

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